



FLUFFSTUFF

Regenerative *softcore* textile fillings

Problem

The \$6.6 billion down feather market is based on the annual slaughter of 3.3 billion ducks.

The textile industry currently lacks a scalable, plant-based and **low-impact** filling material.

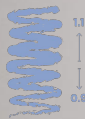
Drained peatlands account for 60% of Finnish agricultural emissions.

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Big problems deserve simple solutions

A superior textile filling that reduces emissions & restores habitats



Compression & recovery

Typha compresses slightly more but also recovers better



Absorption & drying

Typha absorbs less water than down and dries faster



Heat retention & breathability

Typha retains **80%** of heat and has **40%** better breathability



Fill power

Typha fill power is **60%** of down

Validation

The best way to protect ducks and geese from harm is to choose animal-free alternatives to down.

IKONO®

♡ good on you®

The textile industry needs biodegradable filling that is not animal based.

Pure Waste®

If you're committed to shopping sustainably...puffer coats are a bit of a conundrum: Traditional goose down often entails animal cruelty...while vegan fill alternatives are typically made of a petroleum-based synthetic.

VOGUE

Our vision is to replace 80% of the down feathers with plant-based Fluff Stuff.

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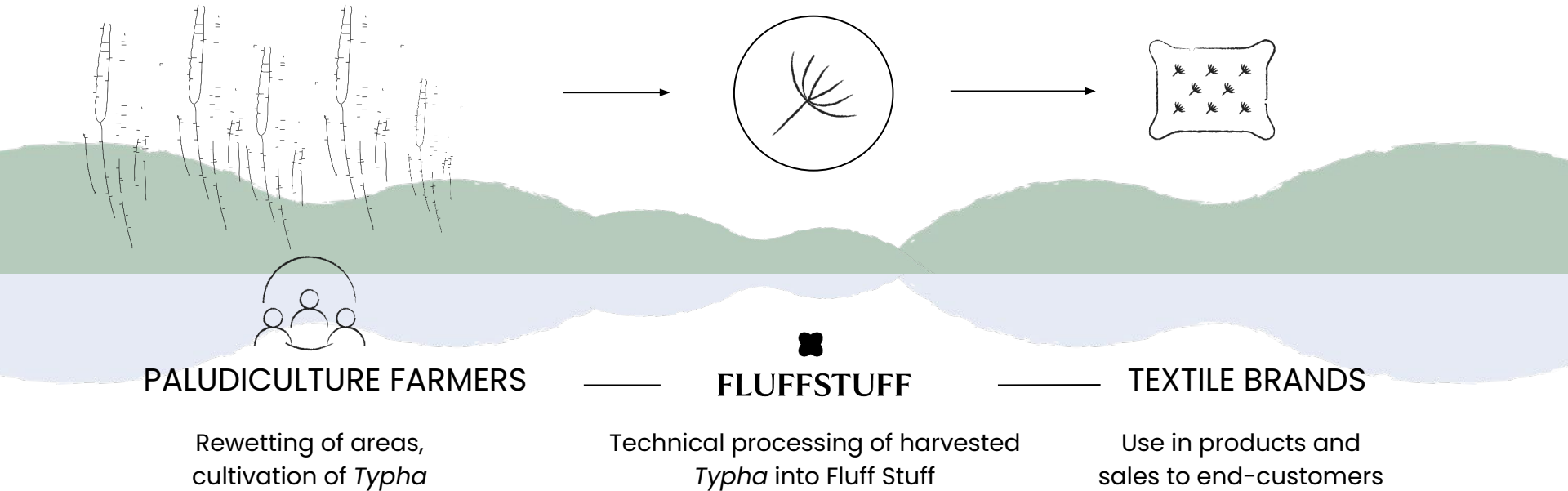


Product feasibility study
ongoing since 2020



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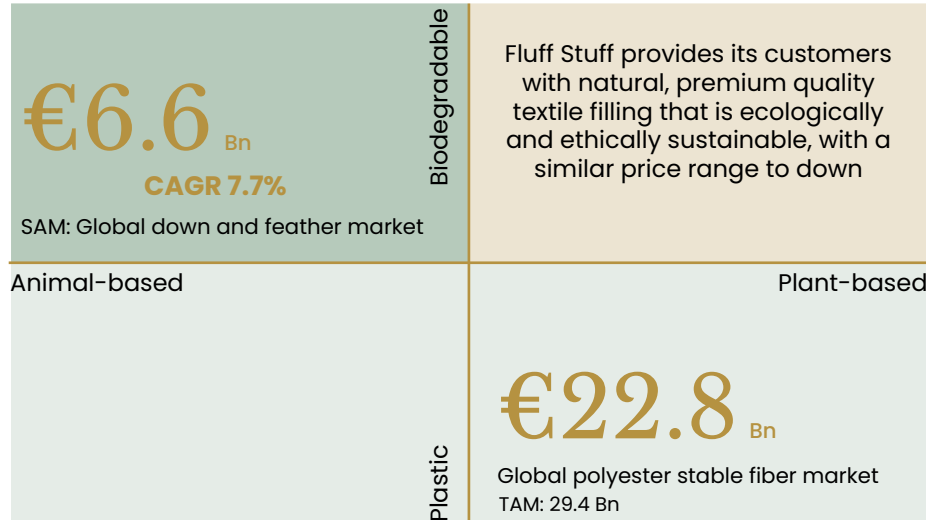
Business model



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Market opportunity

Filling market



€60-120

European premium down market price, per kg

44 625 t

Potential material from Finnish peatlands,
50% fill power

€330_m

SOM: 5% of SAM with price per kg €70

Gross profit margin 75%

21% of Finnish peatlands cultivated

Industry selection

Industry	Bedding	Insulated apparels (jackets, gloves and others)		Sound insulators (automotive, aerospace and HiFi)
Sub segment		Outdoor fashion	Sports	
Industry size	3.4bn	4.1bn		Smaller
End-product price / kg	50-150€	50-2 000€	50-500€	TBD
Light weight products	No	Medium	Yes	Yes
Sustainability focus	Medium	High	High	TBD

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Competition

Competition within plant-based fillings

	Location	Product launch	Market	Material	Advantage of Fluff Stuff
FLUFFSTUFF	FI	2029	B2B	Typha with bio spring	
BioPuff by Ponda	UK	2021	B2B	Typha	UK and Southern Europe has less material
FLWRDWN™ by Pangaia	UK	2019	B2C	Wild flowers, bio-polymer	Different market
PRIMALOFT BIO™	US	2018	B2B	Bio-polymer	Different brand image

Advantage to down



Compression & recovery

Typha compresses slightly more but also recovers slightly better



Absorption & drying

Typha absorbs less water than down and dries slower



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Traction



≥ INNOVESTOR

Validation
of idea

Team formed

PALO program and
pre-seed

MVP

Business Finland TEMPO

Maternity leave

H1 '21

H2 '21–H1 '22

H2 '22

H1 '23

H2 '23

2024

2025

KIUIAS

Laboratory tests & brand
development

Fluff Stuff Oy

Demo lab
Grants

Pilot study
Trademarks

Publishing of cattail
cultivation guide

Recruitment of CTO
Product development
Fiskars exhibition



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Brand exposure

dezeen

Follow:  



Fluff Stuff is a plant-based textile filling that isn't just "serving hippies"



Jane Englefield | 12 September 2022 | 5 comments

Fluff Stuff is a textile filling created from plants cultivated on rewetted peatlands in Finland, which has been designed by students at Aalto University and was on display as part of Helsinki Design Week.

Etuina ekologisuus ja ilmastohyödyt – suomalaisyritys kehittää osmankäämin höytyvästä täytetä tyynyihin ja talvitakkeihin



Fashion carbon-free — E se un'imbottitura tessile fosse una valida alternativa naturale al consumo (animale e feroce) a base di piume d'oca, e promuovesse pratiche agricole sostenibili, come il ripristino dell'ecosistema delle torbiere? In Finlandia si può: ci hanno pensato Lukas Schuck e Teo Auramo, studenti alla Aalto University di Helsinki. Il progetto Fluff Stuff, del tutto scalabile, trasforma le infiorescenze della 'Typha latifolia', un tipo di pianta tipica delle zone umide del Nord, in morbido cotone: le raccoglie una macchina portatile che le estrae dalle spighe per aspirazione per poi innescare un processo di lavorazione a bassissimo impatto ambientale. A conti fatti, secondo gli esperti, il drenaggio delle torbiere, in Finlandia, è responsabile di quasi il 60% delle emissioni agricole. Dai cuscini ai piumini da indossare o con i quali scaldarsi a letto: le fibre di Typha, naturalmente rivestite da uno strato di cera, sono altamente idrorepellenti e rendono il materiale davvero versatile. A prova di torbiera (e di umidità).

ELLE DECOR

Yritys kehittää osmankäämihöytyvästä kilpailijaa untuvalle ja polyesterille – höytyvällä voi täyttää esimerkiksi tyynyjä

Antti Karvonen 09.09.2022 09:55



A"
Aalto University

yle UUTISET

mtv
UUTISET

yle

dwell

ELLE DECOR

dezeen

Scandinavian
MIND

LS:N
GLOBAL

Tekniikka
& **Talous**

KALEVA

MAASEUDUN TULEVAISUUS

Tamperelainen

Impact

LCA estimation Fluff Stuff and down for 20,000kg (2025 sales)

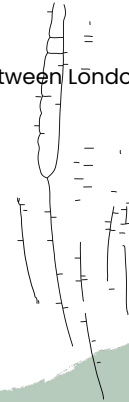
kg CO ₂ eq.			
	Down	Fluff Stuff	Difference
Rewetting peatland		-697,230	-697,230
Duck/goose	84	0	-84
Energy	224	0	-224
Transport	16	16	0
Waste/wastewater	21	0	-21
Water	10	0	-10
Detergents/other materials	8	0	-8
Product	364	16	-347
Total	364	-697,214	-697,577

Rewetting peatlands for *Typha* cultivation to meet 2025 material needs will reduce

697 t

CO₂ eq. per year

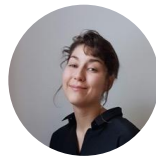
> 240 times a plane between London and San Francisco



Team



Tea Auramo
Founder, CEO
Business consultant
at Volvo, director of
Dodo. intern at LUKE



Laura Rusanen
Prototyping
Textile designer-
teacher, intern at
Hugo Boss and
R collection



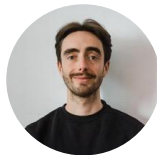
Reidar Wasenius
CCO of Breaks
Finland, former
director of FIBAN



Janne Juhola
Partner at
Innovestor Ventures



Ilkka Pajari
Technology
Chemical engineer
& senior
Industrialization
expert



Lukas Schuck
*Founder, Technical
advisor*
Sustainability at
Siemens



Kristiina Lång
Research professor
at Natural Resources
Institute Finland



Aki Soudunsaari
Co-founder of Naava,
thought leader at Forbes
Business Council



Annu Ansén
Fractional CFO,
former EUR CFO
of Maersk



Tellervo Ala-Lahti
Circular economy at the
Finnish Ministry of
Environment

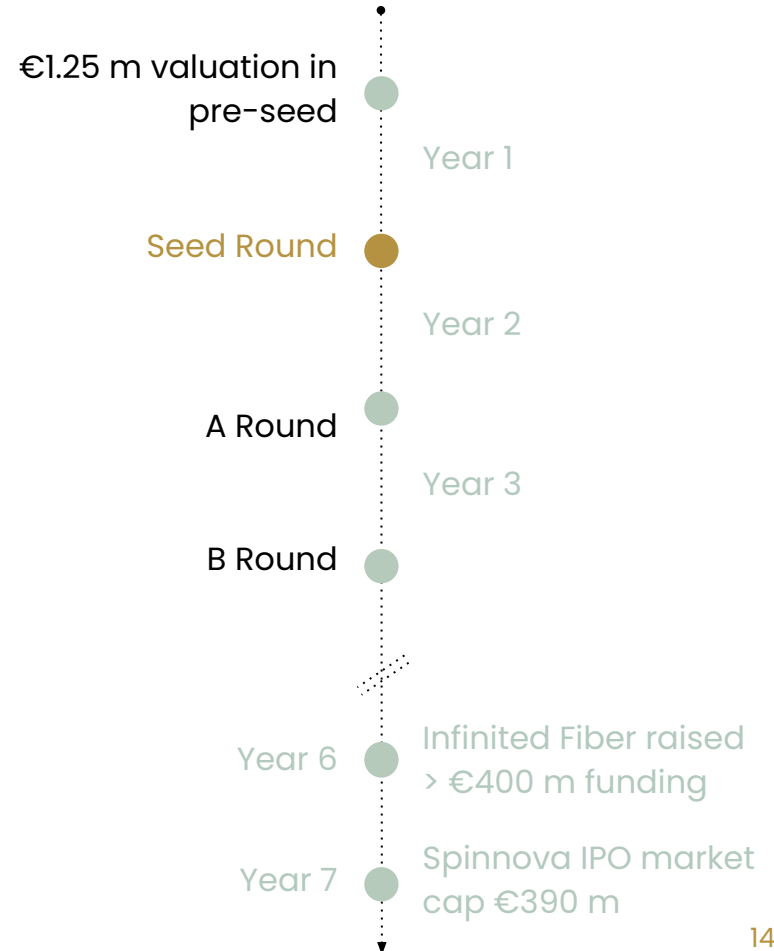
Ask and plan

Ask

250,000€ equity, 100,000€ missing
topped with 400,000€ public funding

Plan

- Finalize and launch 1st product
- Optimize production to reach price point
- Secure IPR
- Scale up facility
- Recruitment of CCO



Product optimization

Fill power from 60% up to minimum 70%, as requested by the Swedish international pilot company with a revenue over \$200 million

Wash tests from 5 to 10

Most prominent solution is to create a biospring that mimics a feather? Biospring material could be other cattail parts?

Production optimization

Improve efficiency in the seed separation process

No earlier success with

- Vibration
- Warm water
- Warm airflow
- Ultrasound

New detailed technology plan available!

Funding needed for continued testing

Cultivation guide

Targeted towards landowners and farmers
Seed and seedling cultivation explained

Permalink

<https://urn.fi/URN:ISBN:978-952-419-001-5>



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